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U. S. Department of Agriculture, Forest Service
FOREST PRODUCTS LABORATORY

In cooperation with the University of Wisconsin

MADISON, WISCONSIN

List of Publications on
DERIVED PRODUCTS

June, 1925



PUBLICATION LISTS OF THE
FOREST PRODUCTS LABORATORY, FOREST SERVICE

Derived Products

This list, which begins on page 3, includes publications that give the results of research by the Forest Products Laboratory on the chemical properties and uses of wood and chemical wood products, such as turpentine, alcohol, and acetic acid.

Other lists of publications dealing with the other investigative projects of the Forest Products Laboratory are obtainable on request. They are as follows:

Boxing and Crating

Strength and serviceability of shipping containers, methods of packing.

Glue, Plywood, and Coatings

Development of waterproof glues. Preparation and application of various glues. Plywood manufacturing problems. Coatings and methods of application.

Industrial Investigations

Methods and practices in the lumber producing and wood consuming industries; standard lumber grades, sizes, and nomenclature; production and use of small dimension stock; specifications for small wooden products; uses for little-used species and commercial woods, and low grade and wood waste surveys.

Pathology (In cooperation with the Bureau of Plant Industry)

Fungous diseases of trees; decay, molds, and stains in timber, in buildings, and in wood products; antiseptic properties of wood preservatives.

Preservation

Preservative materials and methods of application. Durability and service records of treated and untreated wood in various forms.

Pulp and Paper

Suitability of various woods for pulp and paper; fundamental principles underlying the pulping and bleaching processes; methods of technical control of these processes; relation of the chemical and physical properties of pulps and the relation of these properties to the paper making qualities of the pulps; waste in the industry, e.g., decay in wood and pulp, utilization of bark, white water losses, etc.

Timber Mechanics

Strength of timber and factors affecting strength; design of wooden articles or parts where strength or resistance to external forces is of importance.

Timber Physics

Experimental and applied kiln drying, physical properties, air drying, steam bending.

Wood Technology

Identification of wood, effect on wood of turpentining and other extrinsic agencies, and structure of wood in relation to its properties.

The Forest Products Laboratory reserves the right to furnish only those publications, available for distribution, which in its judgment will furnish the information requested. Blanket requests or requests for a large number of copies of any individual article will not be filled except in unusual cases.

LIST OF PUBLICATIONS ON DERIVED PRODUCTS

TECHNICAL NOTES

(Free on application to the Forest Products Laboratory)

(Please give both title and number when ordering)

No.	<u>Title</u>
C-1	Waste Paper-Mill Bark as a Source of Tannin
E-1	Good Flotation Oils from Crude Tar Products
E-2	Potash from Wood Ashes
E-3	Ethyl Alcohol from Waste Sulphite Liquor Using an Acclimated Yeast
E-4	"American Storax" from the Red Gum Tree
120	Yields of Alcohol from Wood Waste
154	Treated Wood Gives Increased Yield of Wood Alcohol
155	Wood Acids
167	Limitations to the Use of Sawdust
169	Why Narrow Chipping Increases the Yield of Resin from Pines
176	Ethyl Alcohol from Western Larch
185	Action of Water on Zinc Chloride in Wood

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MIMEOGRAPHED REPORTS AND REPRINTS

(Free on application to the Forest Products Laboratory)

(Please give both title and number when ordering)

<u>No.</u>	<u>Title</u>
79	An Examination of the Dissolved Tar from the Carbonization of Hard Maple
3	Briquetting of Sawdust
673	Chemical Methods of Utilizing Waste Wood
77	Chemical Products of Cellulose
496	Comparison of Wood Cellulose and Cotton Cellulose
	Condenser for Distilling Oils of Wide Boiling Range
	Destructive Distillation of Fir Waste
	Distillation of Hardwood
	Distillation of Resinous Wood
	Distribution of Lignin in Wood
	Effect of Acids and Salts Upon the Hydrolysis of Wood
	Effect of Adding Various Chemicals to Wood Previous to Distillation
274	Ethyl Alcohol from Western Larch
738	Forest Products as Motor Fuels
563	Forest Products in the Chemical Industries
L-11-560	Hardwood Distillation Industry
	Hydrolyzed Sawdust for Dairy Cows
	Lightwood, Cut-Over Lands, and the Naval Stores Industry
668	Mannose from White Spruce Cellulose
7	Manufacture of Ethyl Alcohol from Wood Waste
5	Manufacture of Oxalic Acid
691	Manufacture of Potash from Wood Ashes
	Methoxyl in Wood Charcoal
	Modified Method for Determining Cellulose in Wood
	Preparation and Analysis of a Cattle Food Consisting of Hydrolyzed Sawdust
466	Production of American Storax - Methods of Collecting Storax from the Red Gum Tree, Costs of Production and Commercial Possibilities
503	Production of Charcoal in the Ordinary Pit Kiln
L-18-6	Production of Artificially Dense Charcoal
	Production of Oil of Birch from Birch Bark
	Specifications for Creosote Oil
512	Sugar Formation in a Sulphite Digester
565	Use of Wood in Chemical Apparatus
6	Water Solubility of Various Wood Tars
	Wood Flour
	Wood Waste as Gas Producer Fuel

BULLETINS AND CIRCULARS

Some of the following publications may be purchased for the nominal prices indicated from the Superintendent of Documents, Government Printing Office, Washington, D. C. Send money order, drafts, or cash in United States money at sender's risk; stamps or personal checks are not accepted. Others marked "Supply Exhausted" at the time this list is issued can be consulted at many public libraries. In a number of cases they have been superseded by more recent publications.

Date of Issue

Manufacture of Ethyl Alcohol from Wood Waste. Department Bulletin 983. 15 cents.	1922
*The Use of Wood for Fuel. Department Bulletin No. 753. 10 cents.	1919
Yields from the Destructive Distillation of Certain Hardwoods. Department Bulletin No. 508. 5 cents (Second report)	1917
*The Naval Stores Industry. Department Bulletin No. 229. 15 cents.	1915
*Yields from the Destructive Distillation of Certain Hardwoods. Department Bulletin No. 129. 5 cents (First report)	1914
Wood Turpentines: Their Analysis, Refining and Composition. Forest Service Bulletin No. 105. 15 cents.	1913
*An Examination of the Oleoresin of Some Western Pines. Forest Service Bulletin, No. 119. 5 cents.	1913
*Distillation of Resinous Wood by Saturated Steam. Forest Service Bulletin No. 109.	1912
*Possibilities of Western Pines as a Source of Naval Stores. Forest Service Bulletin No. 116. 10 cents.	1912

* Supply exhausted.

BULLETINS AND CIRCULARS (Continued)

	<u>Date of Issue</u>
*Relation of Light Chipping to the Commercial Yield of Naval Stores. Forest Service Bulletin No. 90. 10 cents.	1911
*The Analysis of Turpentine by the Fractional Dis- tillation with Steam. Forest Service Circular No. 152.	1908
*Wood Distillation. Forest Service Circular No. 114. 5 cents.	1907
*Practical Results of the Cup and Gutter System of Turpentining. Forest Service Circular No. 34.	1905
*A New Method of Turpentine Orcharding. Forest Service Bulletin No. 40. 20 cents.	1903
*Effect of Turpentine Gathering on the Timber of Longleaf Pine. Forest Service Circular No. 9.	1895
*Strength of "Boxed" or "Turpentine" Timber. Forest Service Circular No. 8.	1892

*Supply exhausted.

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ARTICLES IN TRADE AND TECHNICAL PRESS

Copies of these articles are not available for distribution at the Forest Products Laboratory, except certain ones which are included in the list of mimeographed reports and reprints. All of these references can be consulted in the original publications.

Title	Author	Where Published	Date
Distribution of Lignin in Wood	Ritter, G. J.	Ind. & Eng. Chemistry	June 1925
Water Solubility of Various Wood Tars	Calderwood, H. N. Jr.	Ind. & Eng. Chemistry	May, 1925
Sugar Formation in a Sulphite Digester (Quick Cook Process)	Sherrard, E. C. & Suhm, C. F.	Ind. & Eng. Chemistry	Feb. 1925
An Examination of the Dissolved Tar from the Carbonization of Hard Maple	Hawley, L. F. and Calderwood, H. N. Jr.	Ind. & Eng. Chemistry	Feb. 1925
Chemical Products of Cellulose	Hawley, L. F.	Ind. & Eng. Chemistry	Jan. 1925
Modified Method for Determining Cellulose in Wood	Ritter, G. J.	Ind. & Eng. Chemistry	Sept. 1924
Relation Between Durability and Chemical Composition in Wood	Hawley, L. F.	Ind. & Eng. Chemistry	July 1924
Condenser for Distilling Oils of Wide Boiling Range	Calderwood, H. N. Jr.	Ind. & Eng. Chemistry	June 1924
Determination of Cellulose in Wood	Ritter, G. J. & Fleck, L. C.	Ind. & Eng. Chemistry	Feb. 1924

Title	Author	Where Published	Date
Chemistry of Wood : VII Relation Between Methoxyl & Lignin in Wood	Ritter, G. J.	Ind. & Eng. Chemistry	Dec. 1923
Effect of Acids & Salts Upon the Hydrolysis of Wood	Sherrard, E.C. & Gauger, W.H.	Ind. & Eng. Chemistry	Nov. 1923
Partial Hydrolysis of White Spruce Cellulose	Sherrard, E.C. & Blanco, G.W.	Ind. & Eng. Chemistry	Nov. 1923
Chemistry of Wood VI	Ritter, G. J. & Fleck, L. C.	Ind. & Eng. Chemistry	Oct. 1923
Note on Methoxyl in Wood Charcoal	Hawley, L. F.	Ind. & Eng. Chemistry	July 1923
Action of Concentrated Hydrochloric Acid on Different Celluloses	Sherrard, E.C. & Froehlke, A. W.	Jour. Am. Chem. Soc.	July 1923
Some of the Products Obtained in the Hydrolysis of White Spruce Wood with Dilute Sulfuric Acid under Steam Pressure	Sherrard, E.C. & Blanco, G.W.	Ind. & Eng. Chemistry	June 1923
Mannose from White Spruce Cellulose	Sherrard, E.C. & Blanco, G.W.	Jour. Am. Chem. Soc.	Apr. 1923
Effect of Salts Upon the Acid Hydrolysis of Wood	Sherrard, E.C. & Gauger, W.H.	Ind. & Eng. Chemistry	Jan. 1923
Distribution of Methoxyl in the Products of Wood Distillation	Hawley, L. F. & Aiyar, S. S.	Ind. & Eng. Chemistry	Nov. 1922

Title	Author	Where Published	Date
Chemistry of Wood -V- Results of Analysis of Some American Woods:	Ritter, G. J. & Fleck, L. C.	Ind. & Eng. Chem.	Nov. 1922
Ethyl Alcohol from Western Larch	Sherrard, E.C.	Ind. & Eng. Chem.	Oct. 1922
Sugar Formation in a Sulfite Digester	Sherrard, E.C. & Suhm, C. F.	Ind. & Eng. Chem.	Oct. 1922
Chemistry of Wood -IV- The Analysis of the Wood of Eucalyptus Globulus and Pinus Monticola	Mahood, S. A. & Cable, D. E.	Ind. & Eng. Chem.	Oct. 1922
Comparison of Wood Cellulose and Cotton Cellulose	Mahood, S. A. & Cable, D. E.	Ind. & Eng. Chem.	Aug. 1922
Effect of Adding Vari- ous Chemicals to Wood: Previous to Distilla- tion	Hawley, L. F.	Ind. & Eng. Chem.	Jan. 1922
Hardwood Distillation Industry	Hawley, L. F.	Chem. & Met.	July - 7
			Aug. - 3
			Aug. - 10
			1921
Lightwood, Cut-over Lands and the Naval Stores Industry	Hawley, L. F.	Naval Stores Re- view	Special Number
Production of Dense Charcoal	Hawley, L. F.	Ind. & Eng. Chem.	Mar. 1921
Production of Ameri- can Storax	Mahood, S. A. & Gerry, Eloise	Druggists' Circular	Jan. 1921
Manufacture of Ethyl Alcohol from Wood Waste	Sherrard, E.C.	Chemical Age	Feb. 1921
Forest Products as Motor Fuels	Sherrard, E.C.	Scientific Lubri- cation & Liquid Fuel	Feb. 1921
Conversion of Sawdust into Cattle Feed	Sherrard, E.C.	Chem. & Met.	Jan. 1921

Title	Author	Where Published	Date
Preparation and Analysis of a Cattle Food Consisting of Hydrolyzed Sawdust	Sherrard, E.C. & Blanco, G.W.	Ind. & Eng. Chem.	Jan. 1921
Production of American Storax from the Red Gum Tree	Mahood, S.A. & Gerry, Elcise	Druggists Circular	Jan. 1921
Chemical Investigation of Sound and Infected Ground Wood Pulp	Mahood, S.A. & Cable, D. E.	Paper	Feb. 18, 1920
Numerical Relation between Cells and Treatments in Extraction Processes	Hawley, L. F.	Ind. & Eng. Chem.	May 1920
Tar-Still Operation in Hardwood Distillation Plants	Hawley, L. F. & Calderwood, H. N.	Ind. & Eng. Chem.	July 1920
Some Observations on the Determination of Cellulose in Woods	Mahood, S. A.	Ind. & Eng. Chem.	Sept. 1920
Recent Developments in the Hardwood Distillation Industry, etc.	Hawley, L. F.	Chem. & Met.	Sept. 8, 1920
The Thermal Decomposition of Turpentine, etc.	Mahood, S. A.	Ind. & Eng. Chem.	Dec. 1920
The Acid Hydrolysis of Sugar Cane Fibre and Cotton Seed Hulls	Sherrard, E.C. & Blanco, G.W.	Ind. & Eng. Chem.	Dec. 1920
Reaction Products of Alkali-Sawdust Fusion-Acetic Formic & Oxalic Acids & Methyl Alcohol	Mahood, S. A. & Cable, D. E.	Ind. & Eng. Chem.	July 1919
Chemistry and Wood	Hawley, L. F.	Chemical Age	Oct. 1919
Wood Ashes and Production of Potash	Bateman, E.	Chem. & Met.	Nov. 1919

Title	Author	Where Published	Date
Flotation Experiment on Hardwood Tar Oils	Hawley, L.F. & Ralston, O.C.	Chem. & Met. Col.	June 1919
The Collection and Some Uses of the Oil Resin of Douglas Fir (Oregon Balsam)	Mahood, S. A.	Oil Paint & Drug Reporter Am. Jour. Pharm.	May, June 1919
Ethyl Alcohol from Waste Sulphite Liquor I. A Study of Fermentation Processes	Sherrard, E.C. & Blanco, G.W.	Paper	July 1919
The Influence of Moisture on the Products in the Destructive Distillation of Hardwood	Palmer, R. C. & Cloukey, H.	Ind. & Eng. Chem.	Apr. 1918
The Effect of Incomplete Distillation on the Yield of Products in the Destructive Distillation of Birch	Palmer, R. C.	Ind. & Eng. Chem.	Apr. 1918
The Effect of Catalysts on the Yield of Products in the Destructive Distillation of Hardwoods	Palmer, R. C.	Ind. & Eng. Chem.	Apr. 1918
Sulphite Turpentine	Schorger, A.W.	Paper Ind. & Eng. Chem.	Mar. 1918 Apr. 1918
The Use of Wood in Chemical Apparatus	Schorger, A.W.	Met. & Chem. Eng.	May 1918
Method of Producing Crude Wood Creosote from Hardwood Tar	Judd, R. C. & Acree, S. F.	Ind. & Eng. Chem.	Mar. 1917
The Chemical Composition of the Higher Fractions of Maple-wood Creosote	Pieper, E. J. & Acree, S. F. & Humphrey, C.J.	Ind. & Eng. Chem.	May 1917
Ethyl Alcohol from Wood Waste. Its Possibilities as a Motor Fuel	Thelen, Rolf	The Car Owner	May 1917

Title	Author	Where Published	Date
The Oleoresin of Douglas Fir	Schorger, A.W.	Jour. Amer. Chem. Society	May 1917
On the Toxicity to a Wood-Destroying Fungus of Maplewood Creosote, etc.	Pieper, E. J.; Acree, S.F.; Humphrey, C.J.	Ind. & Eng. Chem.	June 1917
The Chemistry of Wood I Methods and Results of Analysis of Some American Species	Schorger, A.W.	Ind. & Eng. Chem.	June 1917
II Discussion of Methods and Results	Schorger, A.W.	Ind. & Eng. Chem.	June 1917
III Mannan Content of the Gymnosperms	Schorger, A.W.	Ind. & Eng. Chem.	Aug. 1917
The Action of Aluminum Chloride on Cymene (from Sulphite Turpentine)	Schorger, A.W.	Jour. Amer. Chem. Society	Aug. 1917
Discontinuous Extraction Processes	Hawley, L. F.	Ind. & Eng. Chem.	Sept. 1917
Some Miscellaneous Wood Oils for Flotation	Palmer, R. C.; Allen, G. L.; Ralston, O.C.	Trans. Am. Ins. of Mining Engineers	Sept. 1916
Oils of the Coniferae V; The Leaf & Twig & Bark Oils of Incense Cedar	Schorger, A.W.	Ind. & Eng. Chem.	Jan. 1916
Chemistry as an Aid in the Identification of Species	Schorger, A.W.	Proc. Soc. of Amer. Foresters	Jan. 1916
Temperature Control in Wood Distillation	Palmer, R. C.	Ind. & Eng. Chem.	Mar. 1916
Wood Flour	Kressmann, F.W.	Met. & Chem. Eng. Hardwood Record	Apr. 1, " May 10, "
Cost of Burning Sawmill Waste.	Thelen, Rolf	Amer. Lumberman So. Lumberman Hardwood Record	Apr. 22, " Apr. 22, " Apr. 25, "

Title	Author	Where Published	Date
The Conifer Leaf Oil Industry	Schorger, A.W.	Met. & Chem. Eng.	May 1, 1916
		Amer. Lumberman	Apr. 29, 1916
The Galactan of Larix Occidentalis	Schorger, A.W. & Smith, D.F.	Ind. & Eng. Chem.	June 1916
Ethyl Alcohol from Wood, The Process, Its Development and Requirements	Kressmann, F.W.	Automobile Topics	July 1916
		Met. & Chem. Eng.	July 15, "
		Lumber Trade Jour.	"
		W. Coast Lumber-	"
		man Amer. Lumber-	"
		man Hardwood Re-	"
		cord St. Louis	Sept. 1916
		Lumberman	
Studies in the Extraction of Rosin from Wood Experiments Using a Petroleum Solvent	Palmer, R.C. & Boehmer, H. R.	Ind. & Eng. Chem.	Aug. 1915
		Lumber World Review	Sept. 28, 1916
Oils of the Coniferae IV The Leaf and Twig	Schorger, A.W.	Ind. & Eng. Chem.	Jan. 1915
Oils of Digger Pine, Lodgepole Pine and Red Fir			
The Oleoresin of Sand Pine	Schorger, A.W.	Ind. & Eng. Chem.	Apr. 1915
The Briquetting of Sawdust	Thelen, Rolf	Amer. Lumberman	Jan. 9, 1915
Improved Practice in the Production of Naval Stores	Schorger, A.W.	S. Lumberman	May 1, 1915
Osage Orange a Substitute for Fustic	Kressmann, F.W.	Jour. Am. Leather Chemists' Assn.	July 1915
Preliminary Experiments on Effect of Temperature control on Yield of Products in Destructive Distillation of Hardwood	Palmer, R. C.	Ind. & Eng. Chem.	Aug. 1915
Destructive Distillation of Fir Waste	Hunt, George M.	W. Coast Lumberman	Oct. 1915

Title	Author	Where Published	Date
Effect of Various Woods on Corrosion of Nails:	Schorger, A.W.	Amer. Lumberman	Nov. 13, 1915
Isoprene from B-pinene:	Schorger, A.W. & Sayre, R.	Ind. & Eng. Chem.	Nov. 1915
The Manufacture of Ethyl Alcohol from Wood Waste II. The Hydrolysis of White Spruce:	Kressmann, F.W.	Ind. & Eng. Chem.	Nov. 1915
The Manufacture of Ethyl Alcohol from Wood Waste III. Western Larch as Raw Material:	Kressmann, F.W.	Ind. & Eng. Chem.	Nov. 1915
What Chemistry Has Done to Aid the Utilization of Wood:	Acree, S. F.	Ind. & Eng. Chem.	Nov. 1915
The Utilization of Douglas Fir by Distillation:	Hunt, Geo. M.	W. Coast Lumberman	June 1, 1914
Osage Orange: Its Value as a Dye Stuff:	Kressmann, F.W.	Textile Colorist	June 1914
Study of Authentic Samples of Gum Turpentine:	Schorger, A.W.	Ind. & Eng. Chem.	July 1914
Oil of Port Orford Cedar Wood:	Schorger, A.W.	Ind. & Eng. Chem.	Aug. 1914
The Manufacture of Ethyl Alcohol from Wood Waste:	Kressmann, F.W.	Ind. & Eng. Chem.	Aug. 1914
The Oils of the Coniferae I. Leaf and Twig Oils of Cuban and Longleaf Pine:	Schorger, A.W.	Ind. & Eng. Chem.	Sept. 1914
The Coniferae II. The Leaf and Twig and Bark Oils of White Fir:	Schorger, A.W.	Ind. & Eng. Chem.	Oct. 1914
The Possibilities of Hardwood Distillation on the Pacific Coast:	Palmer, R. C.	Timberman	Oct. 1914
		Met. & Chem. Eng.	Oct. 1914

Title	Author	Where Published	Date
Wood Ashes	Bateman, E.	Amer. Lumberman	Oct. 24, 1914
Effect of Pressure on Yield of Products in the Destructive Distillation of Hardwood	Palmer, R.C.	Ind. & Eng. Chem.	Nov. 1914
Oils of the Coniferae III, The Leaf & Twig & Cone Oils of Western Yellow Pine and Sugar Pine	Schorger, A.W.	Ind. & Eng. Chem.	Nov. 1914
A Partial Solution of the Waste Problem	Palmer, R.C.	Proc. Society of American Forester	Jan. 1914
A Statistical Study of the Growth of the Hardwood Distillation Industry & Deductions as to its Future Expansion	Palmer, R.C.	Amer. Lumberman Oil, Paint & Drug Reporter	Feb. 21, 1914 Mar. 9, 1914
Douglas Fir Distillation	Hunt, Geo.M.	Timberman	Apr. 1914
The Use of Wood in Gas Producers	Thelen, Rolf	Proceedings, Soc. of Amer. Foresters	Apr. 1914
The Leaf Oil of Douglas Fir	Schorger, A.W.	Jour. Am. Chem. Soc.	Dec. 1913
The Oleoresins of Jeffrey and Single Leaf Pine	Schorger, A.W.	Ind. & Eng. Chem.	Dec. 1913
The Examination of Oleoresin from several species of Pine Native to the Western States	Schorger, A.W.	Original Communications of Congress of Applied Chemistry	1912
Distillation of Resinous Wood by Saturated Steam	Hawley, L.F. & Palmer, R. C.	Original Communications of Congress of Applied Chemistry	1912
Wood Turpentine	Hawley, L.F.	Ind. & Eng. Chem.	Nov. 1912
		Original Communications of Congress of Applied Chemistry	1912

